and examined the original specimen, and have been presented with an electrotype of it. It is a great curiosity. The resemblance to a snake is wonderfully close, although "the scales and cephalic plates," which M. Olivier identifies with those of a particular Brazilian snake, exist only in a lively imagination. The snake-like surface is covered by delicate meshes of woody fibers; and here and there particular fibers or woody threads can be traced from the body to the woody surface.

The adopted explanation requires us to suppose that a snake had forced his way between the bark and wood of a living tree in a position exactly under a grub or larva; had perished there when within half an inch of its prey; was somehow preserved from decay, even to the eye-sockets and markings of the skin, until a woody growth had formed, the elements of which replaced the whole superficial structure of the animal,—until the animal was lignified! Two other and more probable explanations have suggested themselves. One is, that the snake-like body is of the nature of a root, an aerial root, like those of a *Clusia* or a *Ficus*, which was making its way between bark and wood; and that the supposed larva is an incipient root of the same kind. The other supposes that the sinuous course is the track of a wood-eating larva or some kind of insect, the burrowing of which had not destroyed the overlying liber: consequently the new growth filling the space (except at certain points) had naturally assumed the likeness of a snake. This explanation was suggested by Professor Wadsworth of Cambridge, examining the specimen along with the writer; and it is to be preferred. Still, that head and neck should be so well outlined, and the former so well represent a pair of orbits, were surely most wonderful. But a close inspection of the electrotype showed that there had been some cutting away at the right side of the neck, and that the narrowing there was in part factitious; and less decisive indications suggested that other outlines had been touched up. The subsequent inspection of the original confirmed this; and likewise enlightened us about the eyes. For the left orbit was found to occur, not in a woody structure, like that of the right side, but in a dark material having the appearance of pitch or cement of some sort.

We may rest assured that whatever there may be which is factitous in this most curious *lusus naturæ*, originated before it came into the hands of His Excellency the Brazilian Minister at Washington."

Epiphegus Virginiana.

(PLATE I.)

This little plant being somewhat remarkable in its peculiar way of living, we thought it might not be amiss to follow it in its career from infancy, on through its struggle for existence, to the maturity of its fruit, after which, when thousands of little seeds

are scattered, and having faithfully performed its allotted portion of duty, it quietly retires to rest.

The plant lives but a short time, perhaps not more than a month passing between germination and maturity. During this short time we must complete our investigations or remain as before in darkness as to how it came, how it grew and where it obtained its nourishment.

It has no true roots and does not contain chlorophyll, it therefore must be either parasite or saprophyte. It cannot live where there are no assimilating plants, this would indicate it being a parasite, which indeed it is, but a curious one. Having apparently no haustoria, the question arises, how then does it live? We know that this is a parasite. We know also that it lives extracting, or shall we say receiving nourishment from the beech, and from that alone. Sever its connection with the beech, that is, cut the beech root, on which it grows, carefully as you please, without disturbing the plant itself in the least, it will die; but dig it up, break off all its root-like appendages, but do not cut off the beech root, plant it again and it will live, grow, and ripen its seed. We say it is a parasite on the beech. How? We shall see. Here is a small plant not more than two inches high, less than one-fifth of the full size, growing among some half decayed leaves, or as frequently in soil where there is little or no vegetation but itself and the beech; we dig it up, carefully divest it of its coating of dirt, and we have something like Fig. 1, the lower part of the plant swelled out into a sort of bulb, and from this bulb protruding in all directions, a number of ramifications, in appearance, not unlike the horns of a deer, which for want of a better name we will call grapplers; these might be mistaken for roots but they are not, their use being to hold the plant firmly in the ground: this is probably all we will see, the beech-root having been broken off. To show that this is true, we cut several vertical slices from the bottom of the bulb, and place them under the microscope, somewhere on one of them will be seen (Fig. 2) a cluster of large cells, surrounded by a band of tissue, much finer, and of two different kinds, in which we find a cell formation closely resembling that of the beech, and not to be found in the upper parts of the parasite. (If the plant possess anything analogous to haustoria, it will probably be found in connection with the inner part of this band.)

We now select a larger plant, and find it attached to a larger root, perhaps a sixteenth of an inch in diameter, or more. The parasite has a tight hold with its grapplers, bending them over the root as if to hold it in position, this, however, being not always the case. We break the grapplers away, and find the bulb adhering to the side of the root as if glued; a thin slice and a microscope shows (Fig. 3) the beech root at B, and a portion of the parasite, C, looking very much as though the beech had reversed the order ot things, and had grown into the parasite. But now we go further, and in the

same way examine another (Fig. 4); here the parasite is larger and requires more nourishment, consequently the root has changed its course, all the descending fluids passing into the parasite, while that portion beyond the parasite has dwindled down to less than half its former size; later it decays and falls away, leaving the whole root to the parasite, which is so well supplied that its cells always contain quantities of starch, while there is so much tannin in its juice, that a very good ink may be made by simply adding to it a small quantity of copperas, or sulphate of iron.—S. T. FERGUS, *West Chester, Pa.*

EXPLANATION OF PLATE I.– Fig 1. A young plant; the beech root was attached at A.

Figure 2. A vertical section from the lower part of Fig. 1. A, the point at which the beech root was attached.

Figure 3. Section through beech root, B, and parasite, C. The beech root healthy throughout.

Figure 4. Section through beech root, B, and parasite, C. The beech root at B in a dying condition.

Kentucky Fungi.

A sojourn of a couple of weeks at Norwood near Somerset, Pulaski Co., Kentucky, gave us thirty figures of fleshy or putrescent Fungi and upwards of fifty species of the more durable kinds, all new to our herbarium. We think we have five or six new species but these must remain awhile in the stocks to be well considered before being launched forth upon their independent being. New species of *Lactarii* are easy enough to find and Mr. Berkeley asserts that "the warmer states of North America abound with Lactarii quite different from the European species" but no one need expect to disentangle them unless he persistently *figures* and studies all the different forms he meets with. The same remarks apply to the *Boleti*.

It is not my purpose to catalogue everything observed, but merely to notice some of the more interesting species.

AGARICUS PALYPYRAMIS, *B. & C.* This is a large, coarse, heavy Amanita, the pileus studded with thick warts and the stipe rooting 3 or 4 inches into the ground. I find the spores subelliptic, with a slight oblique apiculus and measuring .009 × .007 mm.

AGARICUS LEAIANUS, *Berk.* This beautiful Mycena of the Cincinnati Catalogue, seems to be abundant everywhere east of the Mississippi. Its spores measure .0090 × .0056 mm.

AGARICUS FENZLII, *Schulz.*, var. My specimen is this species except the stipe in not "sulphureo." Annularias are extremely scarce everywhere. I have never known of any except A. lævis, Krombh., being found in North America before.

CORTINARIUS SQUAMULOSUS, *Peck.*, ranges from New England down here unchanged.

RUSSULA VIRESCENS, *Schaeff.* A new species to us and furnishes a beautiful figure.

LACTARIUS INDIGO, *Schw.* This is deep blue within and with-